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Account of some Experiments on the Torpedo electricus, at La Rochelle.

By John T. Todd, Esq. Communicated by Sir Everard Home, Bart.
V.P.R.S. Read December 5, 1816. [*Phil. Trans.* 1817, p. 32.]

Having upon a former occasion submitted to the Royal Society some experiments and observations on the *Torpedo electricus*, the author is now induced to offer a continuation of his researches; and in the present communication describes a series of experiments undertaken with a view of ascertaining whether that animal possesses any power either of exciting the electrical organs, or of interrupting their action independent of the large system of nerves, by which they are directly supplied. The commencement only of this investigation is now submitted to the Society, the author having been deterred from its completion by untoward circumstances.

His experiments were performed immediately after the fish was taken, and while it was vivacious and active. When the lateral cartilages and all their appertaining muscles were divided, the shocks seemed as potent as before such operation. Neither were the powers of the electrical organ sensibly diminished by removing its superior surface, nor by making a deep vertical incision into it. Even when one half of each electrical organ was removed, the power of giving shocks was retained by the remainder.

These experiments were performed on two torpedos; the one eight, and the other eighteen inches in length. The results were in all main points similar; but the smaller fish became, as might have been expected, most speedily exhausted.

In a third torpedo, between nine and ten inches long, an incision was made round the circumference of both organs, so as to leave no attachment between them and the animal, except by the nerves; but the power of giving shocks was not impaired by this operation. The author remarks that the nerves supplying the electrical organs of the torpedo arise exclusively from the medulla oblongata, notwithstanding the long course which some of them take before they reach the organs.

The torpedo called by the lower orders in France *la Tremble*, is abundantly taken between the mouths of the Seine and the Garonne, and forms an article of food among the poorer inhabitants; who, however, carefully avoid the electric organs, which they consider as noxious.

A Description of a Process, by which Corn tainted with Must may be completely purified. By Charles Hatchett, Esq. F.R.S. In a Letter addressed to the Right Honourable Sir Joseph Banks, Bart. G.C.B. P.R.S. &c. &c. Read December 5, 1816. [*Phil. Trans.* 1817, p. 36.]

The great loss formerly experienced by the mustiness of imported grain, led the author, some years ago, to the means now described of removing the taint, and which he conceives may be advantageously

applied to the large quantities of corn which were unavoidably housed in a damp state, in consequence of the unpropitious weather, during the late harvest. The author considers the mustiness to be confined principally to the exterior amylaceous part of the grain, and the process proposed consists in pouring upon the tainted grain thrice its quantity of boiling water. When cold, the water and floating grains are to be poured off; the corn is to be washed with cold water, drained, and carefully kiln-dried. It will be found perfectly sweet, and the loss of weight is inconsiderable.

The advantages of this process are its simplicity and cheapness; and although the author has hitherto only applied it to wheat, there can, he observes, be little doubt that oats and other grain may be deprived of must with equal success.

Observations on an astringent Vegetable Substance from China. By William Thomas Brande, Esq. Sec. R.S. Read December 12, 1816. [*Phil. Trans.* 1817, p. 39.]

The substance described in this communication was sent to Sir Joseph Banks as a species of galls, used by the Chinese in dyeing black. They have the appearance of irregular vesicles, of a purely astringent flavour, and closely agree with those described by Du Halde under the name of *ou poey tse*, which are also employed in China as the bases of many astringent medicines.

By digestion in cold distilled water, these galls yielded a pale brown infusion, of a highly astringent taste, and furnishing a copious white precipitate with solution of animal jelly: 100 parts thus yielded 78 of soluble matter, which, when obtained by evaporation, was of a brown resinous appearance; and, though only slightly sour to the taste, powerfully reddened the infusion of litmus.

The author remarks that the perfect solubility of this part of the galls in cold water, and its pale colour, indicate that the tannin it contains is nearly, if not perfectly, free from extractive matter; and, by pursuing the usual processes, he succeeded in obtaining it in a considerable state of purity. The tannin thus afforded is also soluble in alcohol; whence, if previous experiments be correct, it is analogous to the tannin of catechu, but distinct from that of galls, which is said to be insoluble in that menstruum.

When all soluble substances in water were removed from the Chinese galls, the residuum afforded to alcohol a minute portion of resinous matter, and 23 per cent. of insoluble woody fibre then only remained.

A further examination of the aqueous infusion proved it to contain gallic acid in considerable proportion; and the method which best succeeded in its separation, consisted in adding lime water to the cold aqueous infusion of the galls, which produces a precipitate composed of tan and lime, and leaves a gallate of lime in solution, which, when cautiously decomposed by oxalic acid, furnishes oxalate of lime and gallic acid nearly, but not perfectly, pure. The author